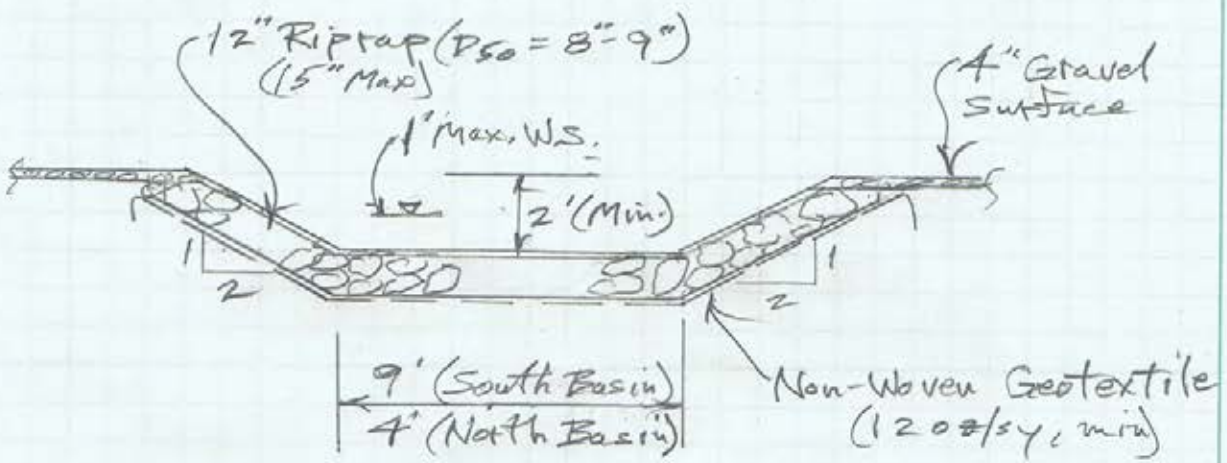
SIMPLOT SMOKEY CANYON MINE
NON-TIME-CRITICAL REMOVAL ACTION (NTCRA)

ENGINEERING CHANGE ORDER (ECO)

ECO # 1	DATE: APRIL 28, 2015
TITLE: Dinwoody Borrow Sedimentation Basin Spillway Modification	
DEGREE OF DESIGN MODIFICATION: INSIGNIFICANT – Minor change to drawings or specifications. No impact to NTCRA ☒ Agency concurs that no approval is required ☐ SIGNIFICANT – Major change to design resulting in altered NTCRA ☐ Agency approval of revised documents is required prior to construction ☐	
DESCRIPTION OF MODIFICATION: In lieu of ½ round CMP across the spillway crest of the south and north sedimentation basin embankments, riprap will be utilized as illustrated on the attached drawing. This is consistent with other ½ round CMPs in the NTCRA design, for which riprap spillways are identified as an alternative. The design change does not change the hydraulic capacity or functionality of the spillway. As shown on the drawing, the flow capacity of the south basin riprap lined spillway is 29.7 cubic feet per second (cfs) and the capacity of the north basin riprap lined spillway is 16.2cfs. As presented in Appendix G of the Remedial Design Report, dated August 2014, the peak design flow for the south basin is 23cfs and the peak design flow for the north basin is 8cfs. It is therefore demonstrated that the flow capacities of each of the riprap lined spillways for the south and north basin exceed the design flow from peak run-off.	
JUSTIFICATION/BENEFIT: 1) Owner's request. 2) Will allow vehicle access across spillway as required for maintenance.	
PREPARED BY: FORMATION ENVIRONMENTAL, LLC on behalf of the J.R. Simplot Company Brian G. Hansen Brian G. Hansen, PE	APPROVED BY:

BORROW AREA SEDIMENTATION BASIN SPILLWAYS - ECO



TYPICAL SECTION

1 Ft Freeboard (min)

$Q = CL(H)^{3/2}$; $H = 1$ Ft.

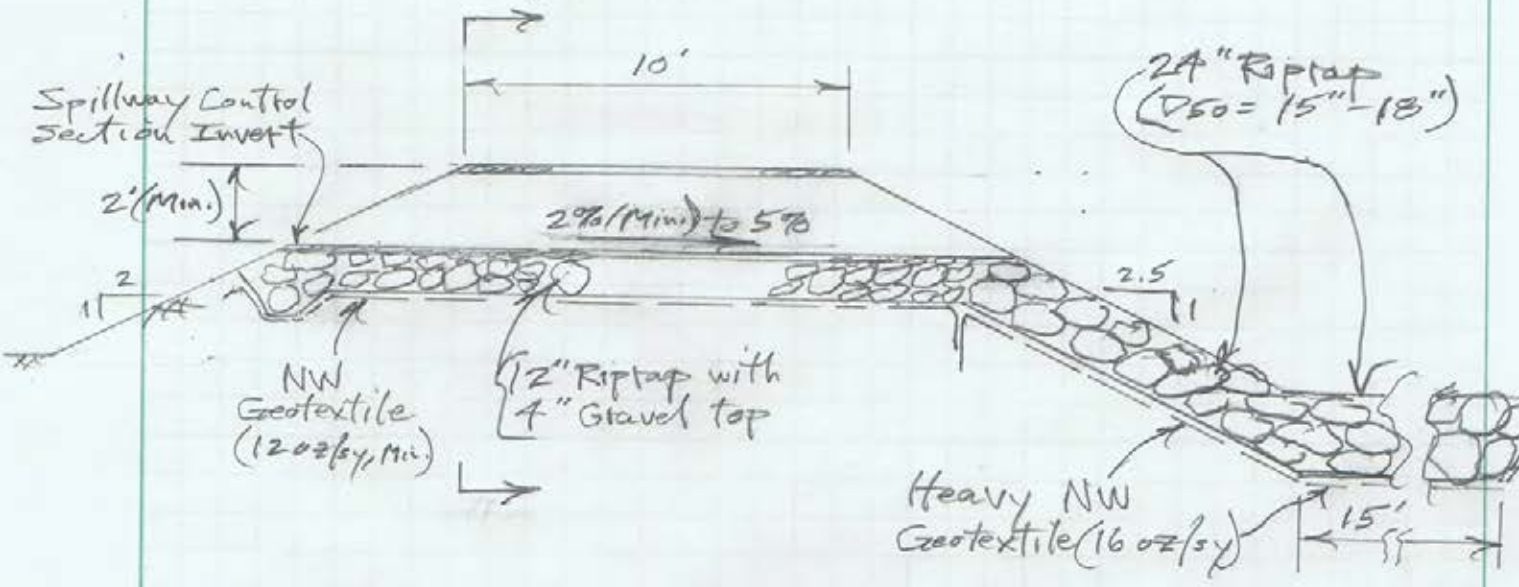
$C = 2.7$; $L = \left(\frac{13+9}{2}\right) = 11$ Ft

$Q = 2.7(11)(1)^{3/2} = 29.7$ cfs

≥ 23 cfs (So. Basin)

$Q = 2.7(6)(1)^{3/2} = 16.2$ cfs > 8 (No. Basin)

OK



SPILLWAY PROFILE

SIMPLOT SMOKY CANYON MINE
NON-TIME-CRITICAL REMOVAL ACTION (NTCRA)

ENGINEERING CHANGE ORDER (ECO)

ECO # 2, REV. 1	DATE: MAY 28, 2015
TITLE: SEEP CONTROL UNDER DRAINS - SOUTH CENTRAL SEDIMENTATION BASIN AREA	

DEGREE OF DESIGN MODIFICATION:

INSIGNIFICANT – Minor change to drawings or specifications. No impact to NTCRA	☒	Agency concurs that no approval is required	☐
SIGNIFICANT – Major change to design resulting in altered NTCRA	☐	Agency approval of revised documents is required prior to construction	☐

DESCRIPTION OF MODIFICATION:

During foundation preparation activities (i.e., clearing, grubbing, and topsoil removal) conducted during the month of April west and northwest of the South Central Sedimentation Basin area, two discrete seeps were revealed in native ground near the juncture with the east side of the existing mine haul road. This area will be covered, for the most part, by the NTCRA construction regrade and cover system. This seepage zone is being referenced as the South Central Sedimentation Basin seep area. Initial observations indicated that seepage flow is typically 1 to 2 gallons per minute (gpm) during relatively dry periods. During periods of precipitation, the number of seeps increased to seven discrete seepage areas with a combined flow of nearly 5 gpm. The number of seeps, and the combined seepage flow rate, increase during periods of precipitation and decrease immediately following precipitation events.

Samples of the original seeps, and a composite sample of the two seeps, were collected on April 22, 2015 and submitted to SVL Analytical for analysis of selenium and general chemistry, including major ions. The analytical results along with respective Piper diagrams, Stiff diagrams, and cation/anion balance information are included as Attachment 1. Conclusions drawn from the reported analytical data are as follows:

- Total selenium concentrations were measured at 0.0094 and 0.0184 mg/L (composite 0.0171 mg/L). These concentrations are in the low end of the range for seeps across the mine, and are most similar to the concentrations measured at seep ES-3.

- Chloride concentrations were measured at 234 and 503 mg/L (composite 368 mg/L). These concentrations indicate an influence from the mine-related sources (possibly use of magnesium chloride as a dust control agent), and are similar to concentrations measured for various stormwater detention basins at the mine.

- Nitrate concentrations were measured at 2.27 and 5.62 mg/L (composite 3.45 mg/L). These concentrations may indicate a potential influence from the blasting compound, and are similar to concentrations measured for seep ES-3, shallow groundwater wells GW-15 and GW-22, Wells Formation groundwater well GW-24, and the Industrial Well.

These analytical results indicate that the seep water chemistry is consistent with other mine runoff waters.

The primary purpose of this ECO is to provide a means for conveying the seep waters out of the embankment that will be constructed in the south-central part of the project area. Removal of the seeps will reduce pore pressures within the embankments and promote stability.

Seepage relief will consist of drainage rock wrapped in non-woven geotextile placed in a 1- to 2-foot deep and 3-foot wide trench excavated into the existing native ground ("under drain") and directed from near the point where the seeps emanate to a temporary discharge point located south and away from the ODA southern limits. The locations of the seeps are indicated on Photograph 1 and the attached drawing that was cropped from DWG 009-001-C7. The underdrain discharge location and seep under drain alignment are also indicated on the attached drawing. A typical section of the under drain is illustrated in the attached Figure 1. Conditions will be assessed at the time of excavation for the under drain and, if it is deemed prudent, the under drain system may be expanded for more effective seep capture.

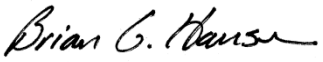
Photograph 1. Looking south along mine haul road just west of South Central Sedimentation Basin May 12, 2015.

It is anticipated that the seepage flow rate will be affected by both seasonal influences and the NTCRA construction. Seep flow will be evaluated throughout the summer to assess potential long term flow rates. Near the end of the construction season, Simplot will identify how the seep flows will be handled, i.e. either by discharging it to the South-Central Sedimentation Basin if the flows are small and can be evaporated most of the time, or by discharging to a new evaporation pond which will be sized based on actual seep flows.

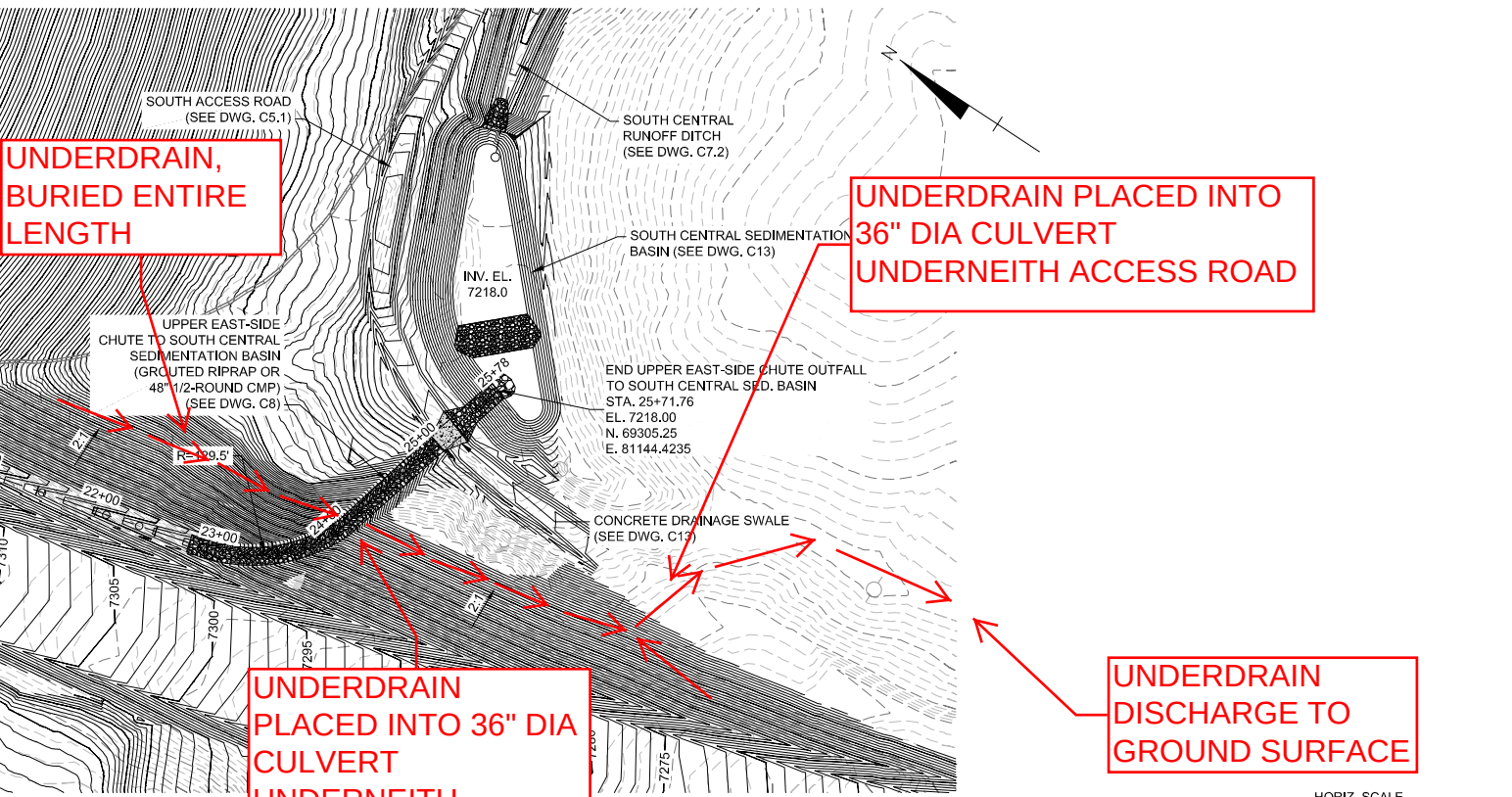
JUSTIFICATION/BENEFIT:

The under drain system, as designed, will convey flows significantly greater than those observed at the seeps, will help to eliminate excess pore pressures in the regraded NTCRA construction components, and will create much dryer soil conditions allowing for construction to continue in the area. The hydraulic relief provided by the underdrain will promote and maintain the stability of the overlying embankment.

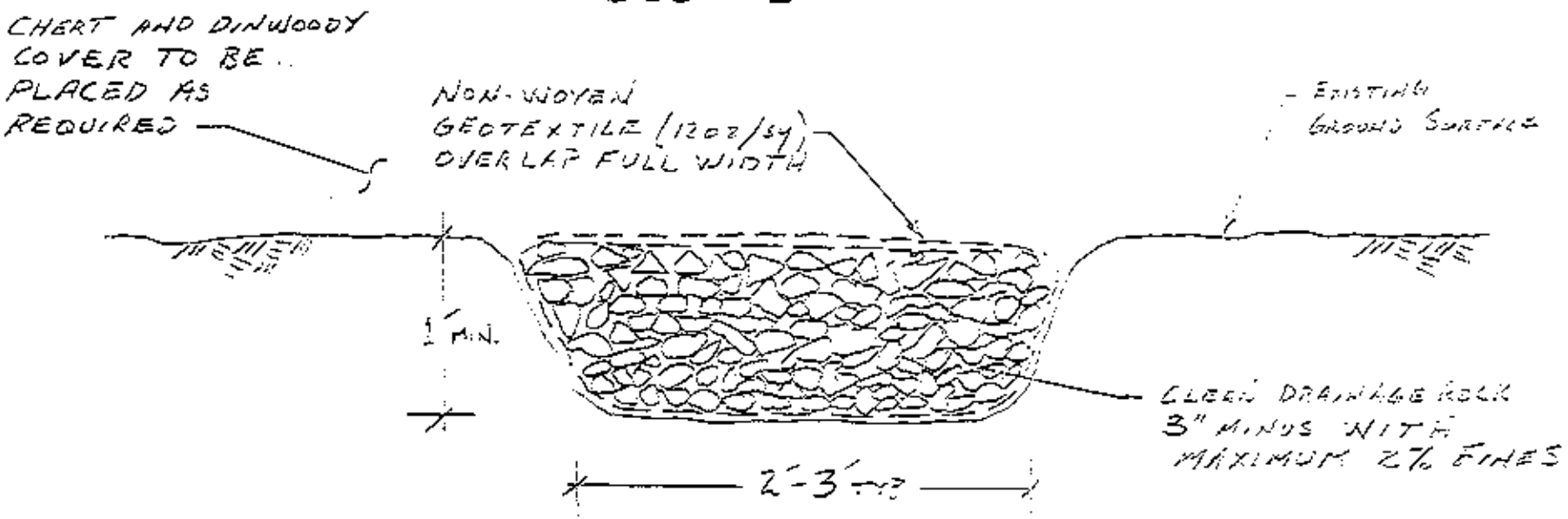
Temporarily discharging the collected seepage to native ground south of the NTCRA area will provide the opportunity to establish a flow rate to be used in designing a method for handling the seep water over the long term. Seepage waters have been infiltrating to this point in time, and therefore a few more months of infiltration is not expected to result in increased harm to the environment.

PREPARED BY:	APPROVED BY:
FORMATION ENVIRONMENTAL, LLC on behalf of the J.R. Simplot Company  Brian G. Hansen, PE	Mary Kauffman Remedial Project Manager U.S. Forest Service (See attached e-mail correspondence dated May 27, 2015)

ATTACHMENT 1


SOUTH ACCESS ROAD
(SEE DWG. C5.1)
SOUTH CENTRAL
RUNOFF DITCH
(SEE DWG. C7.2)
SOUTH CENTRAL SEDIMENTATION
BASIN (SEE DWG. C13)
INV. EL.
7218.0
UPPER EAST-SIDE
CHUTE TO SOUTH CENTRAL
SEDIMENTATION BASIN
(GROUTED RIPRAP OR
48" 1/2-ROUND CMP)
(SEE DWG. C8)
R=19.5'
END UPPER EAST-SIDE CHUTE OUTFALL
TO SOUTH CENTRAL SED. BASIN
STA. 25+71.76
EL. 7218.00
N. 69305.25
E. 81144.4235
CONCRETE DRAINAGE SWALE
(SEE DWG. C13)
22+00
23+00
24+00
25+00
25+78
7310
7305
7300
7295
7275
UNDERDRAIN,
BURIED ENTIRE
LENGTH
UNDERDRAIN PLACED INTO
36" DIA CULVERT
UNDERNEITH ACCESS ROAD
UNDERDRAIN
PLACED INTO 36" DIA
CULVERT
UNDERNEITH
RUNOFF CHUTE
UNDERDRAIN
DISCHARGE TO
GROUND SURFACE
HORIZ. SCALE
75
0
75
FEET

POLE CANYON ODA-NTCRA
ECO # 2



TYPICAL SECTION - SEEP DRAINAGE COLLECTION & CONTROL UNDERDRAIN SYSTEM

NOTE:

1. LOCATION AND ALIGNMENT SHOWN ON ATTACHED MARK-UP OF DWG. 009-001-C7.

FIGURE 2

ATTACHMENT 1

Table 1. Analytical Results for Pole Canyon ODA Seeps Sampled on April 22, 2015

Analyte	Concentration (mg/L)		
	PCSCN (north seep)	PCSCS (south seep)	PCSCSeeps (composite)
Bicarbonate	351	227	291
Calcium	173	241	200
Carbonate	Non-detect	Non-detect	Non-detect
Chloride	234	503	368
Hardness	673	919	769
Magnesium	58.6	77.4	65.4
Nitrate as N	2.27	5.62	3.45
Potassium	2.73	3.32	3.02
Selenium, Dissolved	0.0083	0.0177	0.0164
Selenium, Total	0.0094	0.0184	0.0171
Sodium	36	53.5	43.3
Sulfate as SO4	31.9	61.5	47.6
Total Alkalinity	351	227	291
Total Dissolved Solids	866	1570	1130

PCSCN

Water Type	Ca-Cl		
Dissolved Solids	868.01 mg/kg	866 mg/L	Measured
Density	0.99769 g/cm^3		Calculated
Conductivity	1392.8 µmho/cm		Measured
Hardness (as $CaCO_3$)			
Total	676.13 mg/kg	674.56 mg/L	Measured
Carbonate	577.1	575.76	
Non-Carbonate	99.029	98.799	

Primary Tests

Anion-Cation Balance		
Anions	12.9	
Cations	15.1	
% Difference	7.931	Not within ± 5%
Measured TDS = Calculated TDS		
Measured	868.009	
Calculated	891.563	
Ratio	0.974	Not within range 1.0 to 1.2
Measured EC = Calculated EC		
Measured	1392.800	
Calculated	1249.867	
Ratio	1.114	Not within range 0.9 to 1.1

Secondary Tests

Measured EC and Ion Sums:		
Anions	0.924271	Within preferred range (0.9-1.1)
Cations	1.083499	Within preferred range (0.9-1.1)
Calculated TDS to EC ratio	0.640	OK
Measured TDS to EC ratio	0.623	OK

Organic Mass Balance

DOC ≥ Sum of Organics

DOC unavailable

PCSCS

Water Type	Ca-Cl		
Dissolved Solids	1572.8 mg/kg	1570 mg/L	Measured
Density	0.99822 g/cm^3		Calculated
Conductivity	2041.6 µmho/cm		Measured
Hardness (as $CaCO_3$)			
Total	922.29 mg/kg	920.64 mg/L	Measured
Carbonate	373.02	372.36	
Non-Carbonate	549.26	548.28	

Primary Tests

Anion-Cation Balance		
Anions	19.3	
Cations	20.8	
% Difference	3.803	OK
Measured TDS = Calculated TDS		
Measured	1572.804	
Calculated	1174.434	
Ratio	1.339	Not within range 1.0 to 1.2
Measured EC = Calculated EC		
Measured	2041.600	
Calculated	1824.651	
Ratio	1.119	Not within range 0.9 to 1.1

Secondary Tests

Measured EC and Ion Sums:		
Anions	0.944495	Within preferred range (0.9-1.1)
Cations	1.019183	Within preferred range (0.9-1.1)
Calculated TDS to EC ratio	0.575	OK
Measured TDS to EC ratio	0.770	Not within preferred range (0.55-0.7)

Organic Mass Balance

DOC ≥ Sum of Organics

DOC unavailable

PCSCSeeps

Water Type	Ca-Cl		
Dissolved Solids	1132.4 mg/kg	1130 mg/L	Measured
Density	0.99789 g/cm^3		Calculated
Conductivity	1522.8 µmho/cm		Calculated
Hardness (as $CaCO_3$)			
Total	772.26 mg/kg	770.63 mg/L	Measured
Carbonate	478.35	477.34	
Non-Carbonate	293.91	293.29	

Primary Tests

Anion-Cation Balance

Anions	16.2	
Cations	17.3	
% Difference	3.362	OK

Measured TDS = Calculated TDS

Measured	1132.395	
Calculated	1023.935	
Ratio	1.106	OK

Measured EC = Calculated EC

Measured	N/A	
Calculated	1522.769	
Ratio	N/A	

Secondary Tests

Measured EC and Ion Sums:

Measured EC not available

Calculated TDS to EC ratio

Measured EC not available

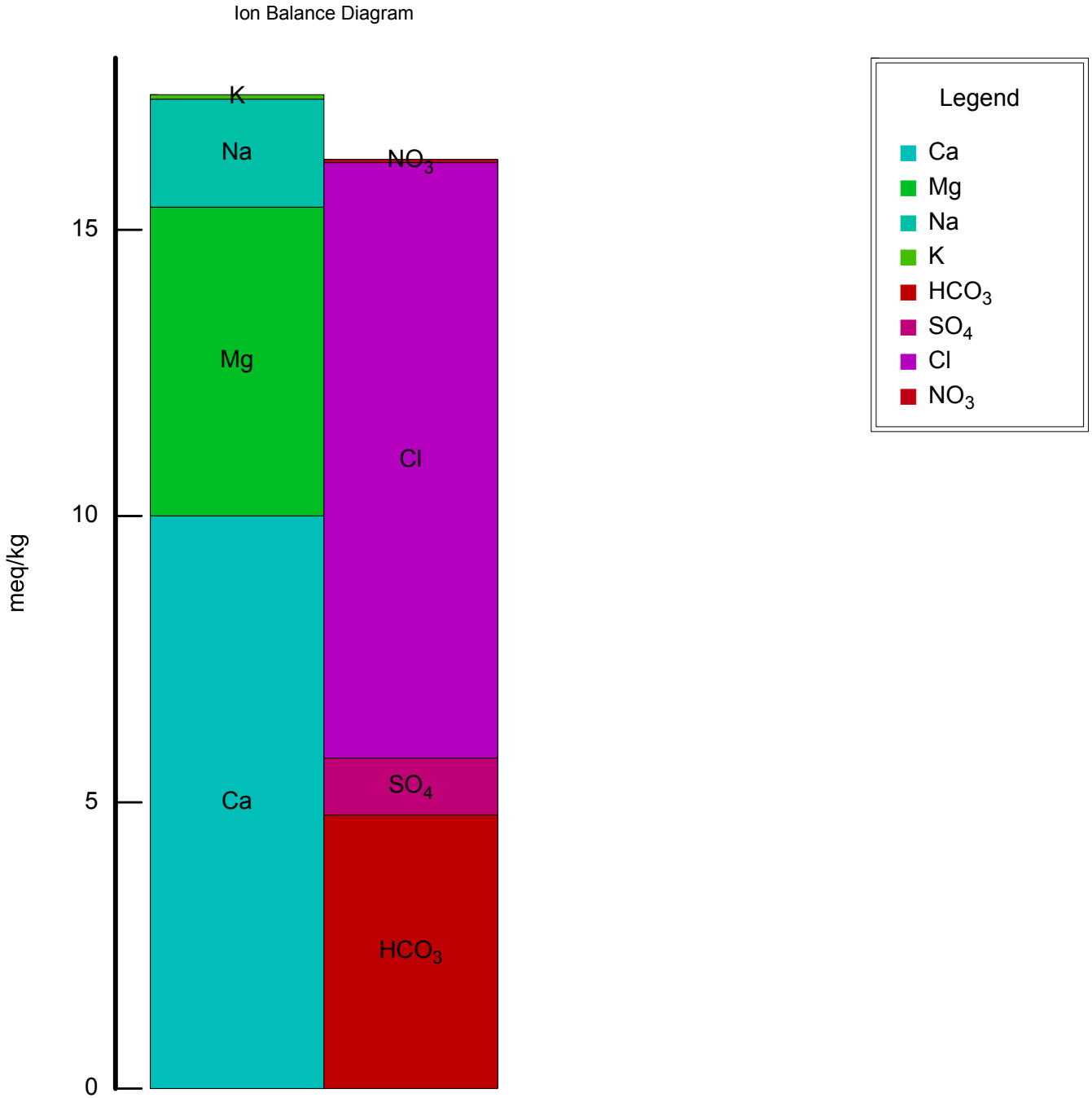
Measured TDS to EC ratio

Measured EC unavailable

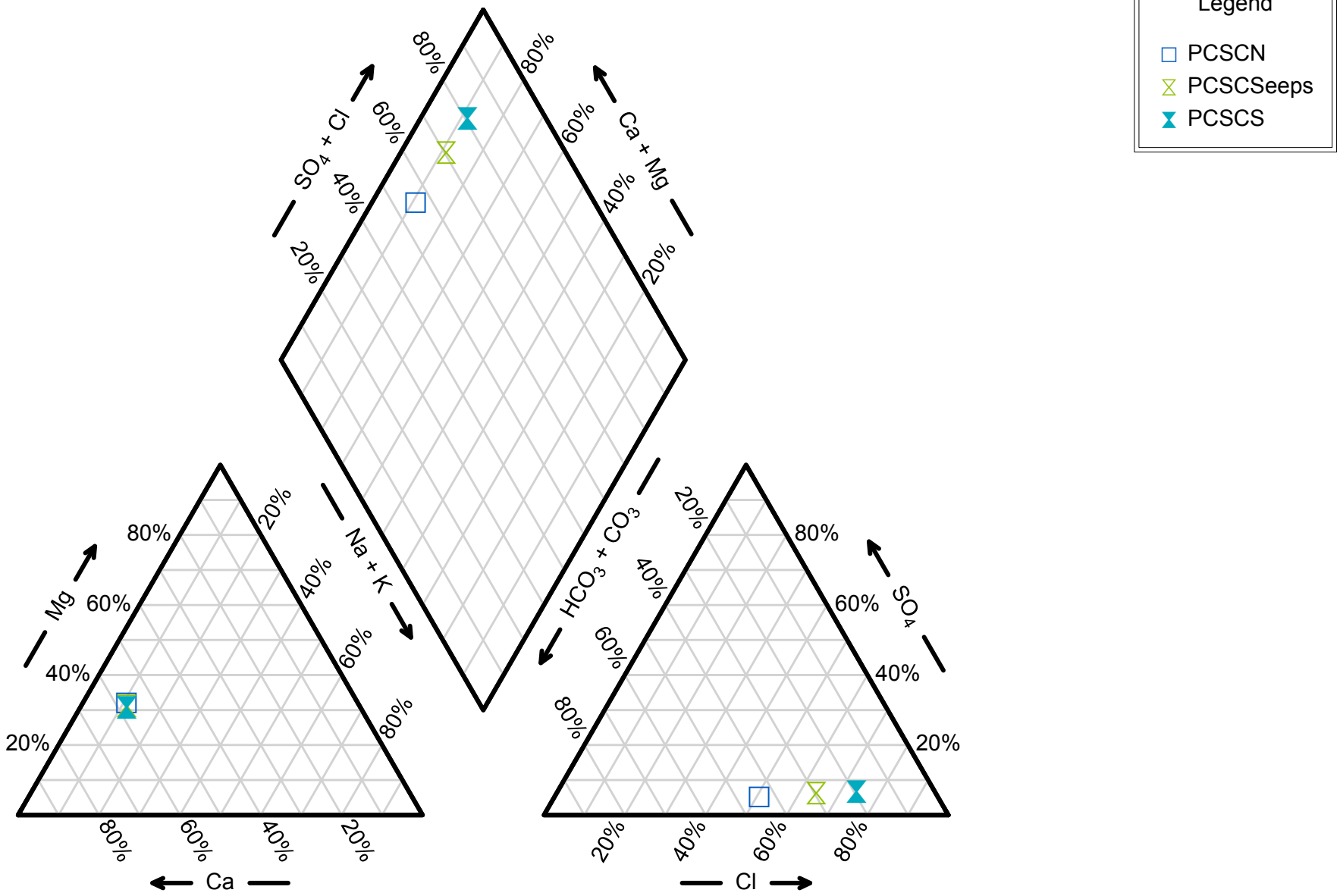
Organic Mass Balance

DOC ≥ Sum of Organics

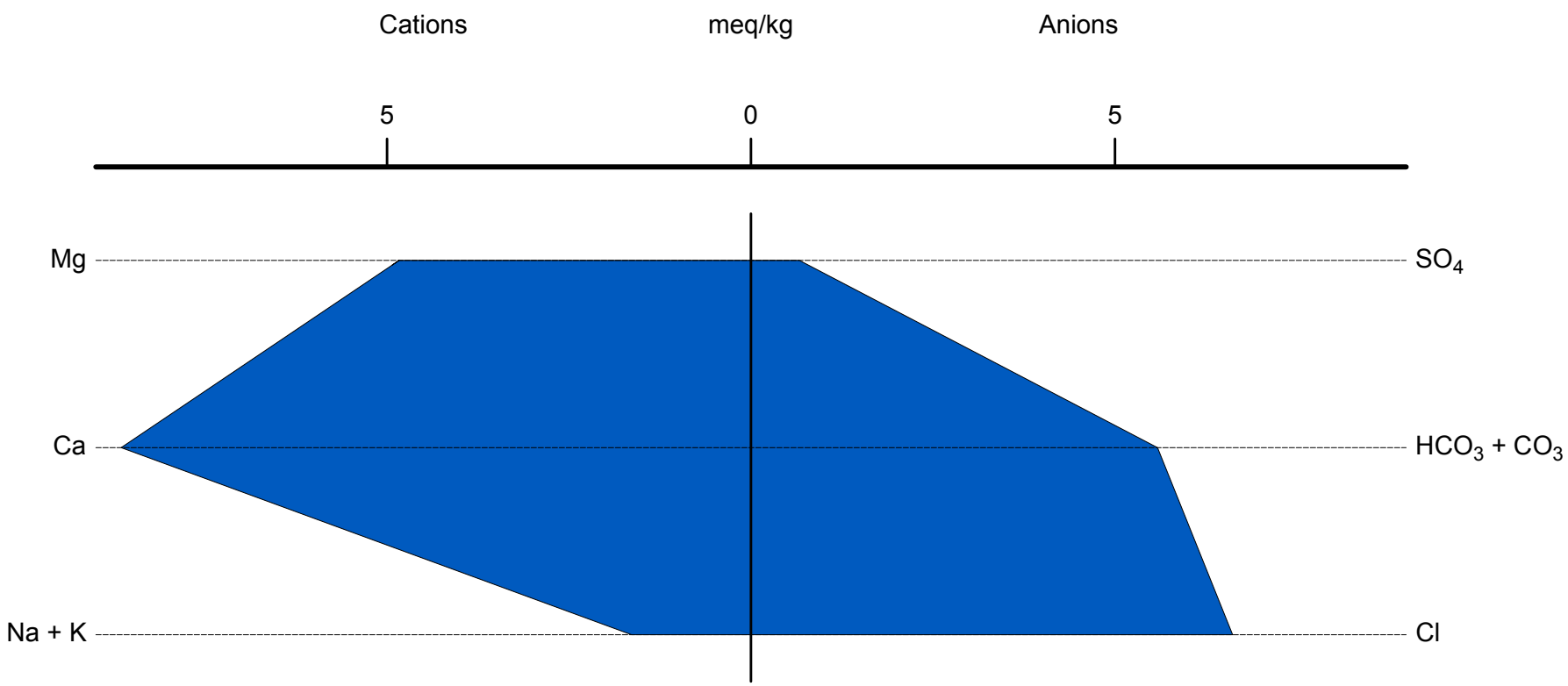
DOC unavailable


Ion Balance Diagram
meq/kg
0
5
10
15
K
Na
Mg
Ca
NO3
Cl
SO4
HCO3
Legend
Ca
Mg
Na
K
HCO3
SO4
Cl
NO3

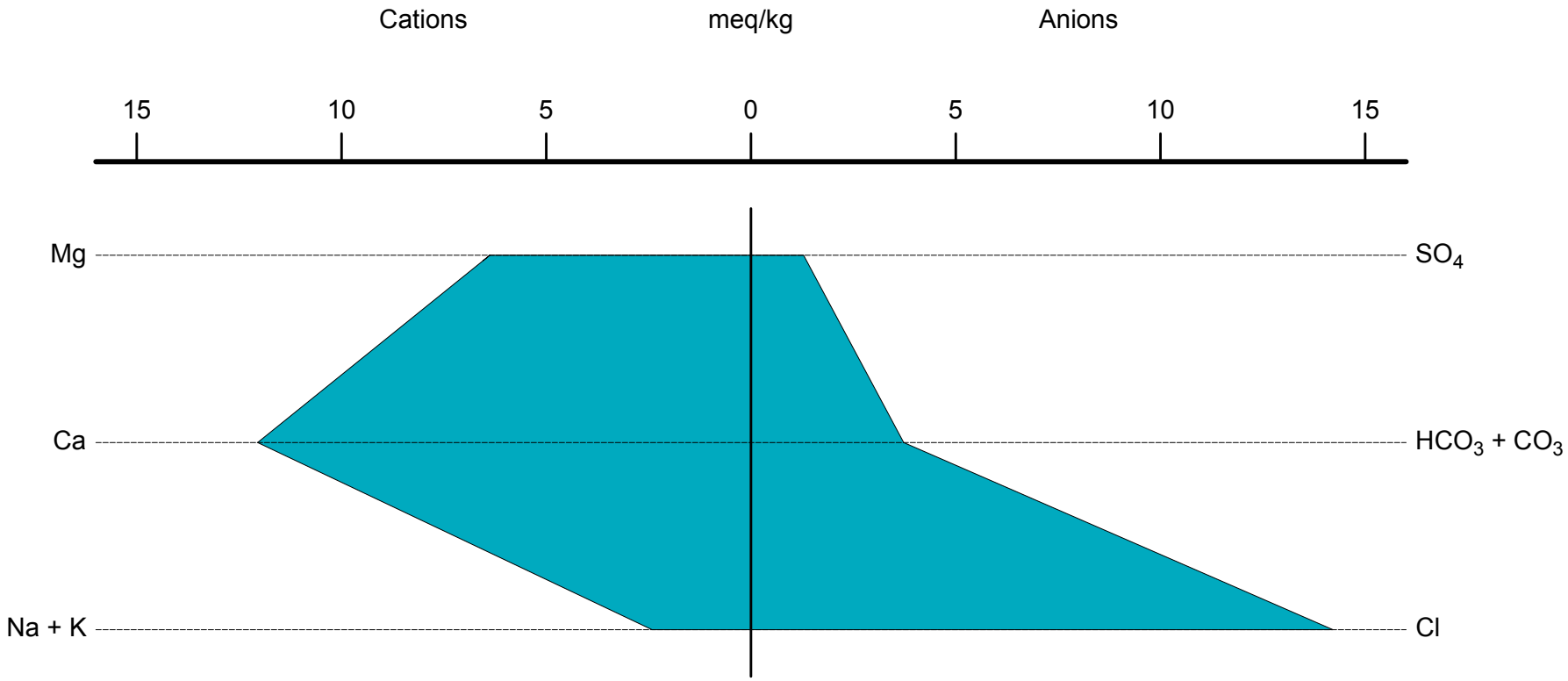
Piper Diagram



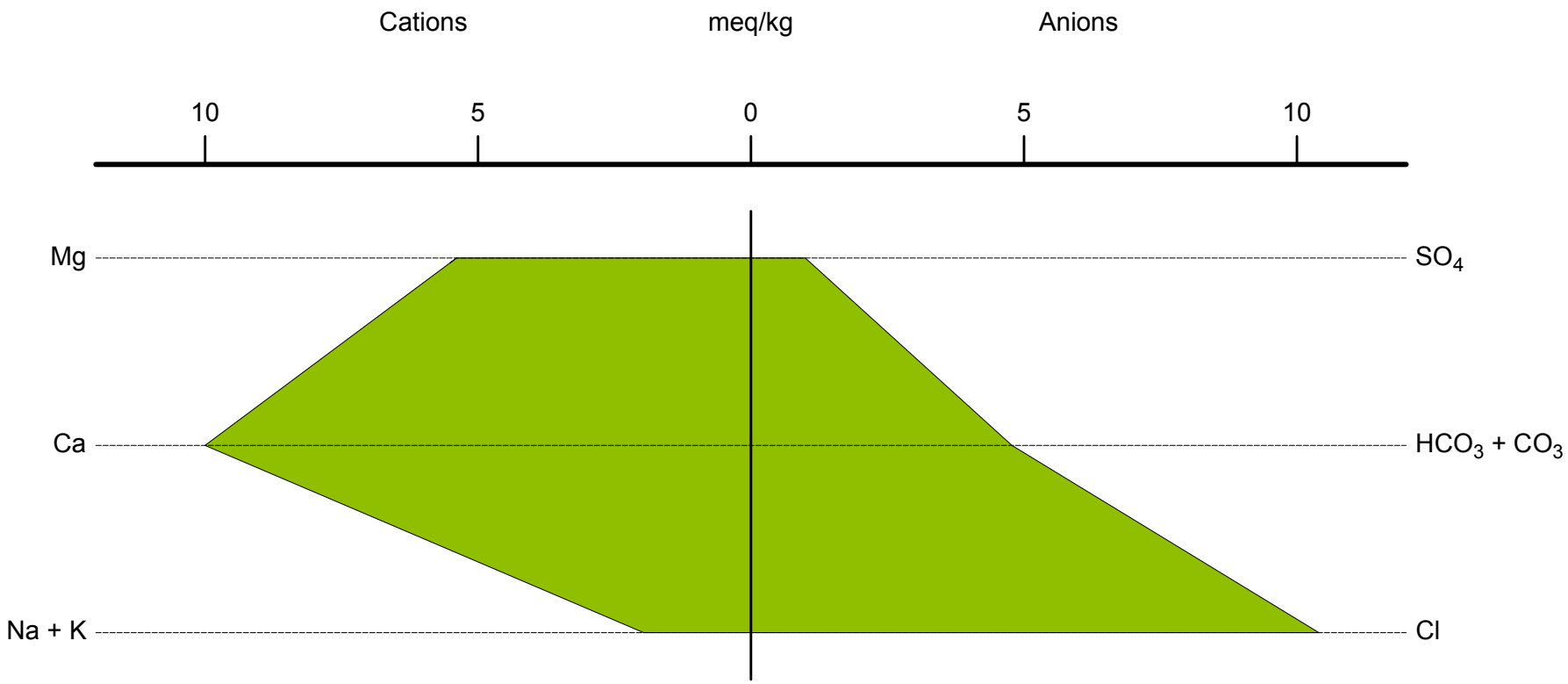
Stiff Diagram



Stiff Diagram



Stiff Diagram



SURFACE WATER SAMPLING RECORD

J.R. SIMPLOT - SMOKY CANYON MINE

LOCATION ID:

Date: ______ Time: ______ Weather ______ Page ___ of ___

Weather Past 48 Hours ______ Personnel: ______

Location Description ______

Water Body Type ______ Water Present (Y/N) ______ Depth ______ Flow Measured (Y/N) ______

QUALITY ASSURANCE

Sampling Equipment: Medium Capacity 0.45 µm filter, Geotech Silicone tubing, Peristaltic Geopump

Decontamination: Alconox, Distilled Water Rinse

Method of Sampling: Collect Sample in Disposable (one-time use) container

FIELD PARAMETER INSTRUMENTS

pH Meter: Model: In-Situ SmarTroll MP Calibration: 4.00/7.00/10.00 pH Buffers

After Calibration Meter Read: ______

Conductivity Meter: Model: In-Situ SmarTroll MP Calibration: 447 µS/cm Conductivity Standard

After Calibration Meter Read: ______

Temperature Meter: Model: In-Situ SmarTroll MP

ORP Meter: Model: In-Situ SmarTroll MP Calibration: YSI Zobel Solution

Turbidity Kit: Model: LaMotte 2020e Turbidimeter, Calibration: ______

SAMPLING MEASUREMENTS

Sample Collection Time	Depth (ft)	pH	Specific Conductance (µmhos/cm)	Temp (°C)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP (mV)

SAMPLE INVENTORY

Sample Type (circle one): Primary Sample Duplicate Equipment Rinsate Blank

SAMPLE ID: ______

Sample Processing Date	Sample Processing Time	Container Type	Volume (mL)	Number of Bottles	Filtered	Preservative	Comments
		Plastic	500	1	N	None	General Chemistry
		Plastic	500	1	Y	HNO3	Dissolved Metals
		Plastic	500	1	N	HNO3	Total Metals
		Plastic	250	1	N	H2SO4	NO2+NO3-N
		Glass	40	2	N	H2SO4	Total Organic Carbon
		Palstic	1L	2	N	None	Isotopes

MAP / COMMENTS **UTM Coordinates (NAD83):**

Composite taken from South + North @ [illegible]

Sample I.D. SCDMS [illegible]

No. Photos

SIGNATURE: [illegible]

J.R. Simplot Company

SMOKY CANYON MINE

SURFACE WATER SAMPLING RECORD

J.R. SIMPLOT - SMOKY CANYON MINE

LOCATION ID:

Date: _____ Time: _____ Weather _____ Page ____ of ____

Weather Past 48 hours _____ Personnel _____

Location Description: _____

Water Body Type: _____ Water Present (Y/N) _____ Depth _____ Flow Measured (Y/N) _____

QUALITY ASSURANCE

Sampling Equipment: Medium Capacity 0.45 µm filter, Geotech Silicone Lining, Peristaltic Geopump

Decontamination: Alconox, Distilled Water Rinse

Method of Sampling: Collect Sample in Disposable (one-time use) container

FIELD PARAMETER INSTRUMENTS

pH Meter: Model: In-Situ SmarTroll MP Calibration: 4.00/7.00/10.00 pH Buffers

After Calibration Meter Read _____

Conductivity Meter: Model: In-Situ SmarTroll MP Calibration: 447 uS/cm Conductivity Standard

After Calibration Meter Read _____

Temperature Meter: Model: In Situ SmarTroll MP

ORP Meter: Model: In-Situ SmarTroll MP Calibration: YSI Zobell Solution

Turbidity Kit: Model: LaMotte 2020e Turbidimeter Calibration: _____

SAMPLING MEASUREMENTS

Sample Collection Time	Depth (ft)	pH	Specific Conductance (µmhos/cm)	Temp. (°C)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP (mV)

SAMPLE INVENTORY

Sample Type (circle one) Primary Sample Duplicate Equipment Rinsate Blank

SAMPLE ID: _____

Sample Processing Date	Sample Processing Time	Container Type	Volume (mL)	Number of Bottles	Filtered	Preservative	Comments
		Plastic	500	1	N	None	General Chemistry
		Plastic	500	1	Y	HNO3	Dissolved Metals
		Plastic	500	1	N	HNO3	Total Metals
		Plastic	250	1	N	H2SO4	NO2+NO3-N
		Glass	40	2	N	H2SO4	Total Organic Carbon
		Plastic	1L	2	N	None	Isotopes

MAP / COMMENTS **UTM Coordinates (NAD83):**

Composite taken from North & South seeps at 11:50 Sample ID SC0415 PASCseeps SW01

No. Photos

SIGNATURE: _____

J.R. Simplot Company

SMOKY CANYON MINE

Brian Hansen

From: Kauffman, Mary E -FS <mkauffman@fs.fed.us>
Sent: Wednesday, May 27, 2015 3:05 PM
To: Brian Hansen
Cc: Johnson, Monty; grant.williams@simplot.com; Jon Friedman; Stumbo, Sherri A -FS
Subject: RE: ECO #2

Sounds very reasonable to me. My recommendation is to reference this email as Forest Service approval of ECO#2 based upon the information in the email below and submit the revised ECO#2 as Approved/Final.

Please add this item to the list of Final Inspection items that will need to be addressed/checked at the end of the project. Otherwise, I know that I, at least, will forget.

Mary E. Kauffman
Remedial Project Manager
Forest Service
p: 208-557-5779
c: 208-313-4469
mkauffman@fs.fed.us

From: Brian Hansen [mailto:bhansen@formationenv.com]
Sent: Wednesday, May 27, 2015 2:58 PM
To: Kauffman, Mary E -FS
Cc: Johnson, Monty; grant.williams@simplot.com; Jon Friedman
Subject: ECO #2

Mary,

As you will recall, you, Monty and I discussed how to handle the seepage we plan to capture in the south central part of the Pole NTCRA area. That approach entailed clearly describing in the ECO how the small amount of seepage would evaporate from the sed basin most of the time, and would only be directed on to the saddle infiltration basin during large storm events.

Since we had that discussion, the number of seeps, and their flow rates, have increased considerably due to the recent heavy precipitation. At these flow rates, we cannot really say that the seepage would evaporate from the sed basin most of the time.
In addition, we believe that the construction work may result in decreased seep flow in the future, particularly because we plan to fill a nearby depression near Simplot's blast compound.

With these things in mind, we would like to propose the following for ECO#2 and wanted to get your input:

1. The ECO will describe the design and construction of the under drain system to route the seepage out of the construction area so that work there can continue and so that potentially troublesome pore pressures will not accumulate in the embankment planned for that area.

2. The collected seepage will be routed off of the ODA and on to native ground where it will infiltrate. Note that it has been infiltrating to the subsurface up to this point in time anyway.

3. We will evaluate the seep flow during the summer to see how it responds to both season and the construction work. Near the end of the construction season, Simplot will identify how the seep flows will be handled, either by sending it to the sed basin if the flows are small enough, or to a new evaporation pond whose size would be based on the seep flows.

Please let us know your thoughts on this general approach. If you are in agreement, we will produce the ECO with the necessary revisions.

Thanks,

Brian G. Hansen, P.E., P.G.
Senior Geological Engineer, Partner

FORMATION
ENVIRONMENTAL

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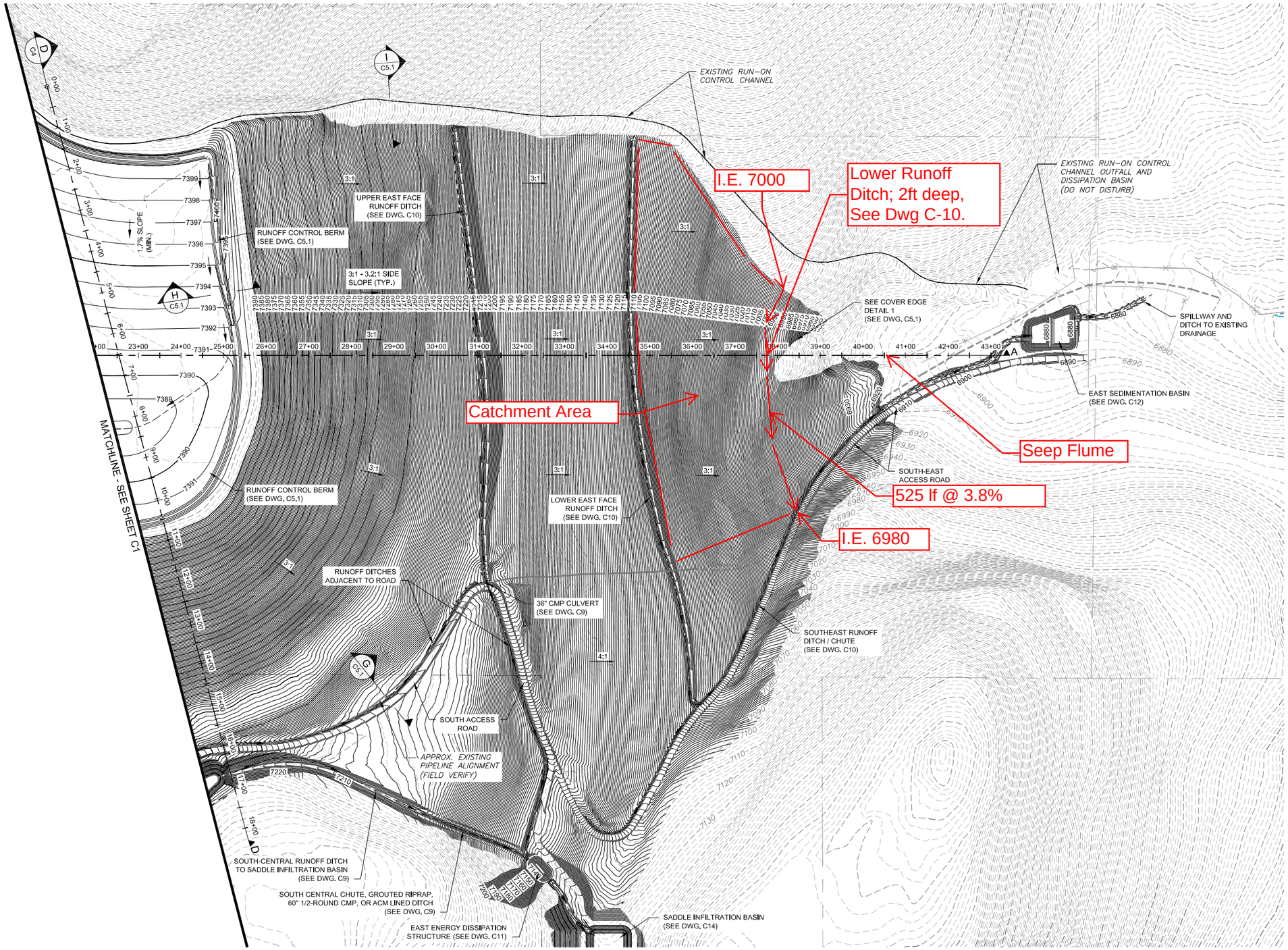
SIMPLOT SMOKEY CANYON MINE
NON-TIME-CRITICAL REMOVAL ACTION (NTCRA)

ENGINEERING CHANGE ORDER (ECO)

ECO # 3	DATE: MAY 5, 2015
TITLE: RUN-OFF CONTROL CHANNEL EAST TOE OVERBURDEN DISPOSAL AREA	
DEGREE OF DESIGN MODIFICATION: INSIGNIFICANT – Minor change to drawings or specifications. No impact to NTCRA ☒ Agency concurs that no approval is required ☐ SIGNIFICANT – Major change to design resulting in altered NTCRA ☐ Agency approval of revised documents is required prior to construction ☐	
DESCRIPTION OF MODIFICATION: In order to capture, control, and divert clean surface water run-off from a small catchment area of approximately 2.3 acres on the east toe of the Overburden Disposal Area, a relatively small water diversion channel will need to be constructed. The catchment area and channel alignment are illustrated on the attached drawing (DWG 009-004-C2). Diversion of runoff flows will be toward the south runoff ditch. Considering the maximum 100 yr, 24 hr storm event, runoff from the catchment area can create a peak flow of approximately 3 cubic feet per second. Using Manning's hydraulic engineering equation and a roughness coefficient of 0.03, a 2 ft deep open V channel with 2(h):1(v) side slopes having similar geometric cross section as detailed in the attached drawing (DWG 009-001-C10), sloping 3.8% from intake invert to outflow invert will have adequate capacity to divert and contain the flow from a 100-yr, 24-hr storm event. This will provide a freeboard in excess of 1 foot and will have a peak velocity of approximately 4.1 fps. Engineering guidelines and specifications that have been approved for the Pole Canyon NTCRA (August 2014 Final Removal Design Report) indicate that open channel water diversions with estimated peak flows of less than 5 feet per second (fps) can be protected from erosion through seeding and vegetation and that diversions with estimated peak flows of between 5 and 10 fps can be protected from erosion through the use of turf reinforcement mats (TRMs). As noted above, the estimated peak flow for subject runon control channel is 4.1 fps. Though this estimate is below 5 fps, the channel will be constructed with TRM to conservatively protect against erosion during peak flows. The new ditch will tie into the Southeast Runoff Ditch/Chute in the same manner as the Lower East Face Runoff Ditch.	
JUSTIFICATION/BENEFIT: The construction of a run-off control channel at the east toe of the ODA will prevent clean runoff water from mixing and comingling with water currently discharging at the ODA toe, which contains selenium and other contaminants of concern, thus limiting the volume of contaminated water that evaporates and/or infiltrates to the subsurface in the area east of the ODA toe.	
PREPARED BY: FORMATION ENVIRONMENTAL, LLC on behalf of the J.R. Simplot Company Brian G. Hansen Brian G. Hansen, PE	APPROVED BY:

DRAWINGS



REFERENCE	NO.	REVISIONS	BY	DATE
	3	ISSUE FOR BID AND CONSTRUCTION	BGH	12/14
	2	ISSUE FOR FINAL REVIEW	BGH	08/14
	1	ISSUE FOR 90% REVIEW	BGH	06/14
	0	ISSUE FOR REVIEW	BGH	02/14

KEY MAP

ORIGINAL SIGNED BY: BRIAN G. HANSEN
PROFESSIONAL ENGINEER REGISTERED 12/31/14 STATE OF IDAHO BRIAN G. HANSEN
NOT VALID UNLESS SIGNED

FORMATION ENVIRONMENTAL

DESIGNED BY:	JHR
DRAWN BY:	JAY
CHECKED BY:	BGH
APPROVED BY:	BGH
FILE NAME:	C1 - C3 Pole Canyon Grading P&P.DWG

J.R. SIMPLOT COMPANY - SMOKY CANYON MINE

POLE CANYON ODA-NTCRA

GRADING PLAN
POLE CANYON ODA EAST AREA

DATE DECEMBER 2014 | DWG. NO. 009-004-C2 | REVISION 3

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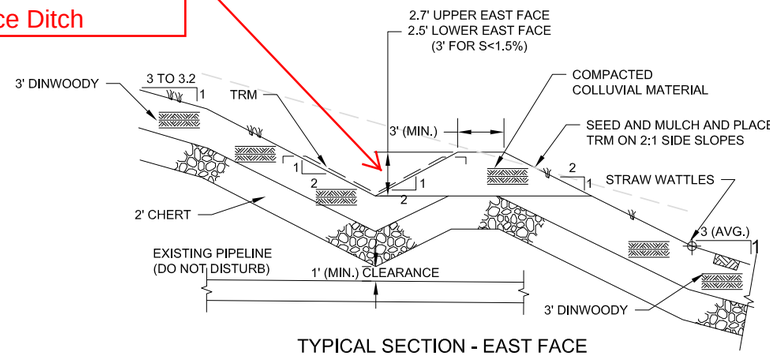
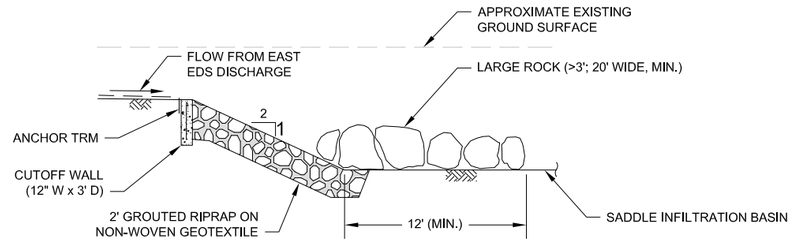
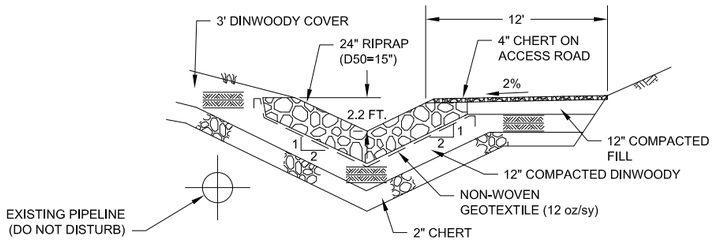
2' for Lowest East-Face Ditch



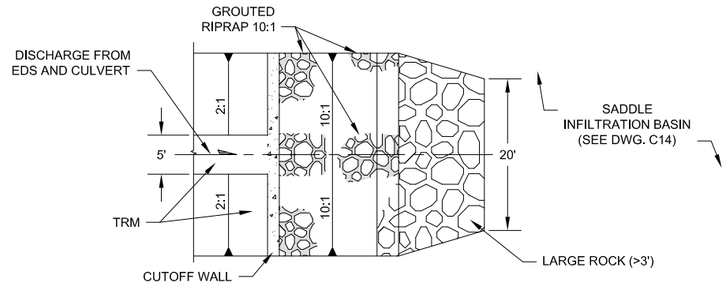
TYPICAL SECTION - EAST FACE
RUNOFF DITCHES
(SEE DWG. C2)
SCALE
5 0 5 FEET



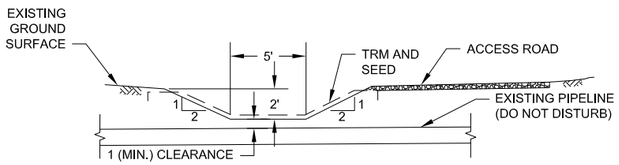
PROFILE - OUTFALL TO SADDLE INFILTRATION BASIN
(SEE NOTE 2)
SCALE
5 0 5 FEET



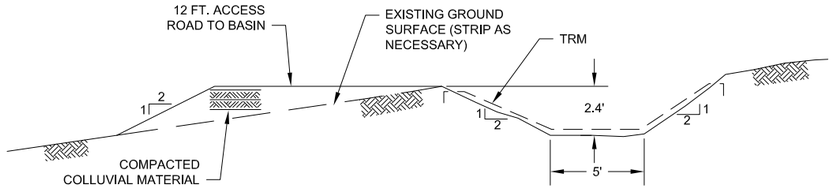
TYPICAL SECTION - SOUTHEAST RUNOFF DITCH/CHUTE
(GRADES >12%)
(SEE DWG. C2)
SCALE
5 0 5 FEET



PLAN OF OUTFALL
(SEE NOTE 2)
SCALE
10 0 10 FEET



TYPICAL SECTION - SOUTHEAST RUNOFF DITCH - LOWER REACH
BELOW EAST TOE (GRADES 5% TO 8%)
(SEE DWG. C2)
SCALE
5 0 5 FEET



DITCH FROM EDS TO SADDLE INFILTRATION BASIN (NOTE 3)
SCALE
4 0 4 FEET

NOTES:

1. APPROVED COMMERCIALLY AVAILABLE DITCH LINING SYSTEMS MAY BE USED IN PLACE OF ACM OR GROUTED RIPRAP (SUCH AS SMARTDITCH).
2. PLAN AND SECTIONS OF SADDLE INFILTRATION BASIN ARE SHOWN ON DWG. C14.
3. IF GRADIENT OF DITCH FROM EDS TO SADDLE BASIN IS >8%, USE 18" RIPRAP IN DITCH (D50=12") ON NW GEOTEXTILE.

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	0	ISSUE FOR REVIEW	BGH	02/14

ORIGINAL SIGNED BY: BRIAN G. HANSEN
PROFESSIONAL ENGINEER REGISTERED 9074 STATE OF IDAHO BRIAN G. HANSEN 12/31/14
NOT VALID UNLESS SIGNED

FORMATION ENVIRONMENTAL

DESIGNED BY:	JHR
DRAWN BY:	SCG
CHECKED BY:	BGH
APPROVED BY:	BGH
FILE NAME:	009-004-C10 .DWG

J.R. SIMPLOT COMPANY - SMOKY CANYON MINE
POLE CANYON ODA NTCRA
EAST-SIDE RUNOFF DIVERSION
DITCH AND OUTFALL SECTIONS

DATE DECEMBER 2014 | DWG. NO. 009-004-C10 | REVISION 3

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